

**IT IS THE VENDOR'S RESPONSIBILITY TO CHECK FOR
ADDENDUMS PRIOR TO SUBMITTING PROPOSALS**

NOTICE TO BIDDERS SPECIFICATION NO. 03-131

The City of Lincoln, Nebraska intends to purchase and invites you to submit a sealed bid for:

Two (2) Duplex Non-Clog Submersible Sump Pump Packages

Sealed bids will be received by the City of Lincoln, Nebraska on or before 12:00 noon Wednesday, May 7, 2003, in the office of the Purchasing Agent, Suite 200, K Street Complex, Southwest Wing, 440 South 8th Street, Lincoln, Nebraska 68508. Bids will be publicly opened and read at the K Street Complex.

Bidders should take caution if U.S. mail or mail delivery services are used for the submission of bids. Mailing should be made in sufficient time for bids to arrive in the Purchasing Division, prior to the time and date specified above.

Specifications For
Duplex Non-Clog Submersible Sump Pump Packages
Theresa Street Wastewater Facility A-3
Northeast Wastewater Facility B-2

1. General

- 1.1 Supplier shall furnish duplex non-clog submersible sump pump packages, including control panel, controls, hatch assembly, and accessories as per the requirements and specifications described herein.
- 1.2 Acceptable manufacturer shall be ITT Flygt.
- 1.3 The following accessories shall be included and bid as part of the system packages.
 - 1.3.1 Control Floats and Stainless Steel Brackets
 - 1.3.2 Stainless Steel Guide Bar Brackets
 - 1.3.3 Discharge Elbows 2 Inch
 - 1.3.4 HDL Ball Check Valves
 - 1.3.5 Stainless Steel Lifting Chain
 - 1.3.6 A Minimum of 20 Feet of Power Cable
 - 1.3.7 Aluminum Treadplate Cover with Hatch Assembly
- 1.4 Supplier shall verify sump size, configuration of discharge piping, treadplate cover dimensions, and hatch position.

2. Operating Requirements and Conditions

- 2.1 A-3 Theresa Street
 - 2.1.1 Submersible pumps shall be sized by the manufacturer for a flow rate of 75 GPM @ 30 TDH for operation on 460 volts, 3 phase, 60 hertz service.
 - 2.1.2 Supplied pumps and associated valving shall be suitable to pump municipal wastewater consisting of both organic and inorganic waste, such as grit, fibrous material and debris normally associated with municipal wastewater treatment.
 - 2.1.3 Tread plate dimension is approximately 3.35ft x 3.35ft.
 - 2.1.3.1 Tread plate dimension shall be field verified for proper fit to the sump curb and to establish access hatch and discharge piping configuration.
- 2.2 B-2 Northeast
 - 2.2.1 Submersible pumps shall be sized by the manufacturer for a flow rate of 75 GPM @ 30 TDH for operation on 460 volts, 3 phase, 60 hertz service.
 - 2.2.2 Supplied pumps and associated valving shall be suitable to pump municipal wastewater consisting of both organic and inorganic waste, such as grit, fibrous material and debris normally associated with municipal wastewater treatment.
 - 2.2.3 Tread plate dimension is approximately 3.83ft x 3.83ft.
 - 2.2.3.1 Tread plate dimension shall be field verified for proper fit to the sump curb and to establish access hatch and discharge piping configuration.

3. Equipment and Performance Specifications

- 3.1 (See Attached Supporting Information)
- 3.2 Please note any exceptions to these specifications.

4. Miscellaneous

- 4.1 Warranty
 - 4.1.1 Supplier shall warrant the specified equipment from defects in materials and workmanship for a period of (5) five years prorated from receipt of equipment. (See Attached Supporting Information)
- 4.2 Operation and Maintenance Information
 - 4.2.1 Three (3) sets of O&M manuals specific to the pump model supplied shall accompany delivery of the equipment.

- 4.2.2 O&M manual information shall consist of general operating instruction, recommended spare parts, recommended maintenance, trouble shooting guides, and exploded part assembly views specific to the pump model supplied.
- 4.2.3 Supplier shall supply a manufacturers pump performance curve specific to the pump model supplied.

5. Delivery Information and Contact

- 5.1 Contact Mr. Steve Crisler, telephone number 402-441-7966 with any technical questions regarding this request.
- 5.2 Shipping address is as follows:
 - 5.2.1 A-3 Theresa Street - City of Lincoln, Theresa Street Wastewater Facility, 2400 Theresa Street, Lincoln, NE. 68521
 - 5.2.2 B-2 Northeast - City of Lincoln, Northeast Wastewater Treatment Facility 7000 North 70th Street, Lincoln, NE 68507

PROPOSAL
SPECIFICATION NO. 03-131
BID OPENING TIME: 12:00 NOON
DATE: May 7, 2003

The undersigned bidder, having full knowledge of the requirements of the City of Lincoln for the below listed items and the contract documents (which include Notice to Bidders, Instructions to Bidders, this Proposal, Specifications, Contract, and any and all addenda) and all other conditions of the Proposal, agrees to sell to the City the below listed items for the performance of this Specification, complete in every respect, in strict accordance with the contract documents at and for unit prices listed below.

ADDENDA RECEIPT: The receipt of addenda to the specifications numbers _____ through _____ are hereby acknowledged. Failure of any bidder to receive any addendum or interpretation of the specifications shall not relieve the bidder from obligations specified in the bid request. all addenda shall become part of the final contract document.

BIDDING SCHEDULE

<u>ITEM</u>	<u>ITEM DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>TOTAL</u>
1.	ITT Flyght duplex non-clog submersible sump pump packages, including control panel, controls, hatch assembly, and accessories as per the requirements and specifications	2 EA	\$ _____	\$ _____

NO BID SECURITY REQUIRED

AFFIRMATIVE ACTION PROGRAM: Successful bidder will be required to comply with the provisions of the City's Affirmative Action Policy (Contract Compliance, Sec. 1.16). The Equal Opportunity Officer will determine compliance or non-compliance with the City's policy upon a complete and substantial review of successful bidder's equal opportunity policies, procedures and practices.

The undersigned signatory for the bidder represents and warrants that he has full and complete authority to submit this proposal to the City, and to enter into a contract if this proposal is accepted.

RETURN 2 COMPLETE COPIES OF PROPOSAL AND SUPPORTING MATERIAL.
MARK OUTSIDE OF BID ENVELOPE: SEALED BID FOR SPEC. 03-131

COMPANY NAME

BY (Signature)

STREET ADDRESS or P.O. BOX

(Print Name)

CITY, STATE ZIP CODE

(Title)

TELEPHONE

(Date)

EMPLOYER'S FEDERAL I.D. NO.
OR SOCIAL SECURITY NUMBER

ESTIMATED DELIVERY DAYS

TERMS OF PAYMENT

Bids may be inspected in the Purchasing Division offices during normal business hours, after tabulation by the purchasing agent. If you desire a copy of the bid tabulation to be mailed to you, you must enclose a self-addressed stamped envelope with your bidding documents. Bid tabulations can also be viewed on our website at: <http://www.ci.lincoln.ne.us/city/finance/purch/specindx.htm>

INSTRUCTIONS TO BIDDERS

CITY OF LINCOLN, NEBRASKA PURCHASING DIVISION

1. BIDDING PROCEDURE

- 1.1 Bidder shall submit two (2) complete sets of the bid documents and all supporting material. All appropriate blanks shall be completed. Any interlineation, alteration or erasure on the specification document shall be initialed by the signer of the bid. Bidder shall not change the proposal form nor make additional stipulations on the specification document. Any amplified or qualifying information shall be on the bidder's letterhead and firmly attached to the specification document.
- 1.2 Bid prices shall be submitted on the Proposal Form included in the bid document.
- 1.3 Bidders may submit a bid on an "all or none" or "lump sum" basis, but should also submit a quotation on an item-by-item basis. Bidding documents shall be clearly marked indicating the kind of proposal being submitted.
- 1.4 Each bid must be legibly printed in ink or by typewriter, include the full name, business address, and telephone number of the bidder; and be signed in ink by the bidder.
- 1.5 A bid by a firm or organization other than a corporation must include the name and address of each member.
- 1.6 A bid by a corporation must be signed in the name of such corporation by a duly authorized official thereof.
- 1.7 Any person signing a bid for a firm, corporation, or other organization must show evidence of his authority so to bind such firm, corporation, or organization.
- 1.8 Bids received after the time and date established for receiving bids will be rejected.

2. BIDDER'S SECURITY

- 2.1 Bid security, as a guarantee of good faith, in the form of a certified check, cashier's check, or bidder's bond, may be required to be submitted with this bid document, as indicated of the Proposal Form.
- 2.2 If alternate bids are submitted, only one bid security will be required, provided the bid security is based on the amount of the highest gross bid.
- 2.3 Such bid security will be returned to the unsuccessful bidders when the award of bid is made.
- 2.4 Bid security will be returned to the successful bidder(s) as follows:
 - 2.4.1 For single order bids with specified quantities: upon the delivery of all equipment or merchandise, and upon final acceptance by the City.
 - 2.4.2 For all other contracts: upon approval by the City of the executed contract and bonds.
- 2.5 City shall have the right to retain the bid security of bidders to whom an award is being considered until either:
 - 2.5.1 A contract has been executed and bonds have been furnished.
 - 2.5.2 The specified time has elapsed so that the bids may be withdrawn.
 - 2.5.3 All bids have been rejected.

- 2.6 Bid security will be forfeited to the City as full liquidated damages, but not as a penalty, for any of the following reasons, as pertains to this specification document:

- 2.6.1 If the bidder fails to deliver the equipment or merchandise in full compliance with the accepted proposal and specifications.
- 2.6.2 If the bidder fails or refuses to enter into a contract on forms provided by the City, and/or if the bidder fails to provide sufficient bonds or insurance within the time period as established in this specification document.

3. EQUAL OPPORTUNITY

- 3.1 Each bidder agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, ancestry, disability, age, or marital status. Bidder shall fully comply with the provisions of Chapter 11.08 of the Lincoln Municipal Code.
- 3.2 Successful bidder will be required to comply with the provisions of the City's Affirmative Action Policy (Contract Compliance, Sec. 1.16).
- 3.3 The Equal Opportunity Officer will determine compliance or non-compliance with the City's Affirmative Action Policy upon a complete and substantial review of successful bidder's equal opportunity policies, procedures and practices.

4. DATA PRIVACY

- 4.1 Bidder agrees to abide by all applicable State and Federal laws and regulations concerning the handling and disclosure of private and confidential information concerning individuals and corporations as to inventions, copyrights, patents and patent rights.
- 4.2 The bidder agrees to hold the City harmless from any claims resulting from the bidder's unlawful disclosure or use of private or confidential information.

5. BIDDER'S REPRESENTATION

- 5.1 Each bidder by signing and submitting a bid, represents that the bidder has read and understands the specification documents, and the bid has been made in accordance therewith.
- 5.2 Each bidder for services further represents that the bidder is familiar with the local conditions under which the work is to be done and has correlated the observations with the requirements of the bid documents.

6. INDEPENDENT PRICE DETERMINATION

- 6.1 By signing and submitting this bid, the bidder certifies that the prices in this bid have been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder prior to bid opening directly or indirectly to any other bidder or to any competitor; no attempt has been made, or will be made, by the bidder to induce any person or firm to submit, or not to submit, a bid for the purpose of restricting competition.

7. CLARIFICATION OF SPECIFICATION DOCUMENTS

- 7.1 Bidders shall promptly notify the Purchasing Agent of any ambiguity, inconsistency or error which they may discover upon examination of the specification documents.
- 7.2 Bidders desiring clarification or interpretation of the specification documents shall make a written request which must reach the Purchasing Agent at least seven (7) calendar days prior to the date and time for receipt of bids.
- 7.3 Interpretations, corrections and changes made to the specification documents will be made by written addenda.
- 7.4 Oral interpretations or changes to the Specification Documents made in any other manner, will not be binding on the City; and bidders shall not rely upon such interpretations or changes.

8. ADDENDA

- 8.1 Addenda are written instruments issued by the City prior to the date for receipt of bids which modify or interpret the specification document by addition, deletion, clarification or correction.
- 8.2 Addenda will be mailed or delivered to all who are known by the City to have received a complete set of specification documents.
- 8.3 Copies of addenda will be made available for inspection at the office of the Purchasing Agent.
- 8.4 No addendum will be issued later than forty-eight (48) hours prior to the date and time for receipt of bids, except an addendum withdrawing the invitation to bid, or an addendum which includes postponement of the bid.
- 8.5 Bidders shall ascertain prior to submitting their bid that they have received all addenda issued, and they shall acknowledge receipt of addenda on the proposal form.

9. ANTI-LOBBYING PROVISION

- 9.1 During the period between the bid close date and the contract award, bidders, including their agents and representatives, shall not directly discuss or promote their bid with any member of the City Council or City Staff except in the course of City-sponsored inquiries, briefings, interviews, or presentations, unless requested by the City.

10. BRAND NAMES

- 10.1 Wherever in the specifications or proposal form brand names, manufacturer, trade name, or catalog numbers are specified, it is for the purpose of establishing a grade or quality of material only; and the term "or equal" is deemed to follow.
- 10.2 It is the bidder's responsibility to identify any alternate items offered in the bid, and prove to the satisfaction of the City that said item is equal to, or better than, the product specified.
- 10.3 Bids for alternate items shall be stated in the appropriate brand on the proposal form, or if the proposal form does not contain blanks for alternates, bidder MUST attach to the specification documents on Company letterhead a statement identifying the manufacturer and brand name of each proposed alternate, plus a complete description of the alternate items including illustrations, performance test data and any other information necessary for an evaluation. The bidder must indicate any variances by item number from the specification document no matter how slight. Bidder must fully explain the variances from the specification document, since brochure information may not be sufficient.

- 10.4 If variations are not stated in the proposal, it will be assumed that the item being bid fully complies with the City's specifications.

11. DEMONSTRATIONS/SAMPLES

- 11.1 Bidders shall demonstrate the exact item(s) proposed within seven (7) calendar days from receipt of such request from the City.
- 11.2 Such demonstration can be at the City delivery location or a surrounding community.
- 11.3 If bidder does not have an item in the area, it will be at the bidder's expense to send appropriate City personnel to the nearest location to view and inspect proposed item(s).
- 11.4 If items are small and malleable, and the bidder is proposing an alternate product, the bidder MUST supply a sample of the exact item. Samples will be returned at bidder's expense after receipt by the City of acceptable goods. Bidders must indicate how samples are to be returned.

12. DELIVERY

- 12.1 Each bidder shall state on his proposal form the date upon which he can make delivery of all equipment or merchandise. Time required for delivery is hereby made an essential element of the bid.
- 12.2 The City reserves the right to cancel orders, or any part thereof, without obligation, if delivery is not made within the time(s) specified on the proposal form.
- 12.3 All bids shall be based upon **inside** delivery of the equipment or merchandise F.O.B. the City at the location specified by the City, with all transportation charges paid.

13. WARRANTIES, GUARANTEES AND MAINTENANCE

- 13.1 Copies of the following documents must accompany the bid proposal for all items being bid:
 - 13.1.1 Manufacturer's warranties and/or guarantees.
 - 13.1.2 Bidder's maintenance policies and associated costs.
- 13.2 As a minimum requirement of the City, the bidder will guarantee in writing that any defective components discovered within a one (1) year period after the date of acceptance shall be replaced at no expense to the City. Replacement parts of defective components shall be shipped at no cost to the City. Shipping costs for defective parts required to be returned to the bidder shall be paid by the bidder.
- 13.3 Bidder Warrants and represents to the City that all software/firmware/ hardware/equipment /systems developed, distributed, installed or programmed by Bidder pursuant to this Specification and Agreement.
 - 13.3.1 That all date recognition and processing by the software/firmware/hardware/equipment/system will include the four-digit-year format and will correctly recognize and process the date of February 29, and any related data, during Leap years; and
 - 13.3.2 That all date sorting by the software /firmware/hardware/ equipment/system that includes a "year category" shall be done based on the four-digit-year format. Upon being notified in writing by the City of the failure of any software/ firmware/ hardware /equipment /systems to comply with this Specification and Agreement, Contractor will, within 60 days and at no cost to the City, replace or correct the non-

complying software/ firmware/ hardware/ equipment/ systems with software/firmware/ hardware/equipment/ systems that does comply with this Specification and Agreement.

- 13.3.3 No Disclaimers: The warranties and representations set forth in this section 13.3 shall not be subject to any disclaimer or exclusion of warranties or to any limitations of Licensor's liability under this Specification and Agreement.

14. ACCEPTANCE OF MATERIAL

- 14.1 All components used in the manufacture or construction of materials, supplies and equipment, and all finished materials, shall be new, the latest make/model, of the best quality, and the highest grade workmanship.
- 14.2 Material delivered under this proposal shall remain the property of the bidder until:
- 14.2.1 A physical inspection and actual usage of this material is made and found to be acceptable to the City; and
- 14.2.2 Material is determined to be in full compliance with the specifications and accepted proposal.
- 14.3 In the event the delivered material is found to be defective or does not conform to the specification documents and accepted proposal, then the City reserves the right to cancel the order upon written notice to the bidder and return materials to the bidder at bidder's expense.
- 14.4 Successful bidder shall be required to furnish title to the material, free and clear of all liens and encumbrances, issued in the name of the City of Lincoln, Nebraska, as required by the specification documents or purchase orders.
- 14.5 Selling dealer's advertising decals, stickers or other signs shall not be affixed to equipment. Vehicle mud flaps shall be installed blank side out with no advertisements. Manufacturer's standard production forgings, stampings, nameplates and logos are acceptable.

15. BID EVALUATION AND AWARD

- 15.1 The signed bid proposal shall be considered an offer on the part of the bidder. Such offer shall be deemed accepted upon issuance by the City of purchase orders, contract award notifications, or other contract documents appropriate to the work.
- 15.2 No bid shall be modified or withdrawn for a period of sixty (60) calendar days after the time and date established for receiving bids, and each bidder so agrees in submitting the bid.
- 15.3 In case of a discrepancy between the unit prices and their extensions, the unit prices shall govern.
- 15.4 The bid will be awarded to the lowest responsive, responsible bidder whose proposal will be most advantageous to the City, and as the City deems will best serve their requirements.
- 15.5 The City reserves the right to accept or reject any or all bids; to request rebids; to award bids item-by-item, by groups, or "lump sum"; to waive irregularities and technicalities in bids; such as shall best serve the requirements and interests of the City.

16. INDEMNIFICATION

- 16.1 The bidder shall indemnify and hold harmless the City, its members, its officers and employees from and against all claims, damages, losses, and expenses, including, but not limited to attorney's fees arising out of or resulting from the performance of the contract, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property other than goods, materials and equipment furnished under this contract) including the loss or use resulting therefrom; is caused in whole or part by any negligent act or omission of the bidder, any subcontractor, or anyone directly or indirectly employed by any one of them or anyone for whose acts made by any of them may be liable, regardless of whether or not it is caused by a party indemnified hereunder.
- 16.2 In any and all claims against the City or any of its members, officers or employees by an employee of the bidder, any subcontractor, anyone directly or indirectly employed by any of them or by anyone for whose acts made by any of them may be liable, the indemnification obligation under paragraph 16.1 shall not be limited in any way by any limitation of the amount or type of damages, compensation or benefits payable by or for the bidder or any subcontractor under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts.

17. TERMS OF PAYMENT

- 17.1 Unless other specification provisions state otherwise, payment in full will be made by the City within thirty (30) calendar days after all labor has been performed and all equipment or other merchandise has been delivered, and all such labor and equipment and other materials have met all contract specifications.

18. LAWS

- 18.1 The Laws of the State of Nebraska shall govern the rights, obligations, and remedies of the Parties under this proposal and any agreement reached as a result of this process.

Steady 7 (C/D-3057)

Section 7



Performance Specifications

Issued: 9/00

Supersedes:

REQUIREMENTS

Furnish and install ___ submersible non-clog wastewater pump(s). Each pump shall be equipped with a ___ HP, submersible electric motor connected for operation on ___ volts, ___ phase, 60 hertz, ___ wire service, with ___ feet of ___ submersible cable (SUBCAB) suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards. The pump shall be supplied with a mating cast iron ___ inch discharge connection and be capable of delivering ___ GPM at ___ TDH. An additional point on the same curve shall be ___ GPM at ___ feet total head. Shut off head shall be ___ feet (minimum). Each pump shall be fitted with ___ feet of ___ lifting chain or stainless steel cable. The working load of the lifting system shall be 50% greater than the pump unit weight.

PUMP DESIGN

The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well.

PUMP CONSTRUCTION

Major pump components shall be of grey cast iron, ASTM A-48, Class 30B, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be AISI type 304 stainless steel construction. All exterior metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of alkyd primer and a synthetic resin enamel finish.

All O-rings shall be of Nitrile Rubber. The lifting handle shall be galvanized steel. Cast iron impellers shall be sprayed with primer.

COOLING SYSTEM

Motors are sufficiently cooled by the surrounding environment or pumped media. A water cooling jacket is not required.

CABLE ENTRY SEAL

The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief

function, separate from the function of sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal. **A JUNCTION BOX SHALL BE COMPLETELY SEALED OFF FROM THE PUMPED MEDIA. Epoxies, silicones, or other secondary sealing systems shall not be considered acceptable.**

MOTOR

The pump motor shall be induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber, NEMA B type. The stator windings and stator leads shall be insulated with moisture resistant Class F insulation rated for 155°C (311°F). The stator shall be dipped and baked three times in Class F varnish and shall be heat-shrink fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing is not acceptable. The motor shall be designed for continuous duty handling pumped media of 40°C (104°F) and capable of up to 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of cast aluminum. The motor and pump shall be designed and assembled by the same manufacturer.

The combined service factor (combined effect of voltage, frequency and specific gravity) shall be a minimum of 1.15. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to 40°C (104°F) ambient and with a temperature rise not to exceed 80°C. A performance chart shall be provided showing curves for torque, current, power factor, input/output kW and efficiency. This chart shall also include data on starting and no-load characteristics.

The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The outer jacket of the cable shall be oil resistant chloroprene rubber. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet.

The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.

BEARINGS

The upper bearing shall be a single row ball bearing. The Lower bearing shall be a two row angular contact ball bearing. Motor bearings shall be permanently grease lubricated.

Steady 7 (C/D-3057)

Section 7



Performance Specifications

Issued: 9/00

Supersedes:

MECHANICAL SEAL

Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in an lubricant reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal shall be corrosion resistant **tungsten-carbide/** **tungsten-carbide**. The upper seal shall be **ceramic/** **ceramic**. The seals shall require neither maintenance nor adjustment nor **DEPEND ON DIRECTION OF ROTATION FOR SEALING**.

Seal lubricant shall be FDA Approved, non-toxic.

PUMP SHAFT

Pump and motor shaft shall be the same unit. The motor shaft shall be composed of carbon steel under the rotor laminations and the pump shaft shall be of stainless steel.

The pump shaft is an extension of the motor shaft; couplings shall not be acceptable.

IMPELLER

C-3057: The Impeller(s) shall be of Polyamid, dynamically balanced, closed single-vane non-clogging design having a long throughlet without acute turns.

D-3057: The Impeller(s) shall be of gray cast iron, dynamically balanced, open vortex design.

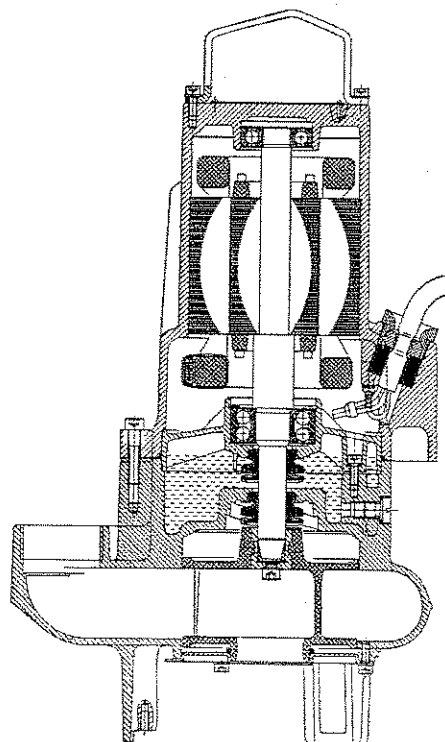
VOLUTE

Pump volute(s) shall be single-piece grey cast iron, Class 30B, non-concentric design with smooth passages large enough to pass any solids that may enter the impeller. Wear rings shall not be required. Minimum inlet and discharge size shall be as specified.

MODIFICATIONS

1. Warm Liquid Applications (WL).

Refer to the General Guide Specifications for additional information.



General Guide Specifications

Section 7



Issued: 5/97

Supersedes: 5/96

GENERAL

The general guide specifications is intended to cover the items applying to all Flygt pumps for this project. Pump specifications follow the general section. Thus; Quality, Technical Support, Testing, and Experience apply to all Flygt pumps for this project.

SCOPE

The specifications shall govern all work necessary to furnish, install and place into operation the electrical submersible pump(s) required to complete this project. This section includes electric submersible pump(s) to be supplied with motor, close coupled volute, cast iron discharge elbow, guide bar brackets, power cable and accessories. The pumps are available for wet pit (CP), dry pit (CT) and portable (CS) installations.

QUALITY ASSURANCE

The pump(s) shall be heavy duty, electric submersible, centrifugal non-clog units designed for handling raw, unscreened sewage and wastewater and shall be fully guaranteed for this use. The pumps provided shall be capable of operating in an ambient liquid temperature of 104°F. Since the high temperature of 104°F is specified by the National Electrical Manufacturers Association (NEMA) and Factory Mutual (FM), motors with a maximum ambient temperature rating below 104°F shall not be acceptable.

The pump and motor unit shall be suitable for continuous operation at full nameplate load while the motor is completely submerged, partially submerged or totally non-submerged. The use of shower systems, secondary pumps or cooling fans to cool the motor shall not be acceptable.

The pump, mechanical seals and motor units provided under this specification shall be from the same manufacturer in order to achieve standardization of operation, maintenance, spare parts, manufacturer's service and warranty.

SUBMITTALS

Submittal data shall be provided to show compliance with these specifications, plans or other specifications that will influence the proper operation of the pump(s).

Standard submittal data for approval must consist of:

- a. Pump Performance Curves.
- b. Pump Outline Drawing.
- c. Station Drawing for Accessories.
- d. Electrical Motor Data.

- e. Control Drawing and Data.
- f. Access Frame Drawing.
- g. Typical Installation Guides.
- h. Technical Manuals.
- i. Parts List.
- j. Printed Warranty.
- k. Manufacturer's Equipment Storage Recommendations.
- l. Manufacturer's Standard Recommended Start-Up Report Form.

Lack of the above requested submittal data is cause for rejection.

TESTING

Testing performed upon each pump shall include the following inspections:

- a. Impeller, motor rating and electrical connections shall be checked for compliance with this specification.
- b. Prior to submergence, each pump shall be run dry to establish correct rotation.
- c. Each pump shall be run submerged in water.
- d. Motor and cable insulation shall be tested for moisture content or insulation defects.

Upon request, a written quality assurance record confirming the above testing/inspections shall be supplied with each pump at the time of shipment.

Each pump (when specified) shall be tested in accordance with the latest test code of the Hydraulic Institute (HI) at the manufacturer to determine head vs. capacity and kilowatt draw required. Witness tests shall be available at the factory upon request.

The pump(s) shall be rejected if the above requirements are not satisfied.

START-UP SERVICE

The equipment manufacturer shall furnish the services of a qualified factory trained field service engineer for 8-hour working day(s) at the site to inspect the installation and instruct the owner's personnel on the operation and maintenance of the pumping units. After the pumps have been completely installed and wired, the contractor shall have the manufacturer do the following:

General Guide Specifications

Section 7



Issued: 5/97

Supersedes: 5/96

- a. Megger stator and power cables.
- b. Check seal lubrication.
- c. Check for proper rotation.
- d. Check power supply voltage.
- e. Measure motor operating load and no load current.
- f. Check level control operation and sequence.

During this initial inspection, the manufacturer's service representative shall review recommended operation and maintenance procedures with the owner's personnel.

FACTORY SERVICE

Factory-Approved service facilities with qualified factory-trained mechanics shall be available for prompt emergency and routine service.

GUARANTEE

See individual market sector Warranty Policies as presented in section 1 of this catalog.

The warranty shall be in printed form and previously published as the manufacturer's standard warranty for all similar units manufactured.

EXPERIENCE

The pump manufacturer shall have a minimum of 10,000 heavy-duty submersible wastewater pumps installed and operating for no less than 5 years in the United States.

MANUFACTURERS

- a. The pump, mechanical seals and motor shall be from the same manufacturer.
- b. The pump, mechanical seals and motor manufacturer shall be Flygt.

MODIFICATIONS:

a. EXPLOSION-PROOF PUMPS (X):

The pump system including the pump, motor and power cable shall be approved for use in areas classified as hazardous locations in accordance with the NEC Class I, Div. 1, Group C and D service as determined and approved by a U.S. nationally recognized testing laboratory (U.L., FM, CSA) at the time of the bidding of the project. As required by Factory Mutual (FM) the motor shall be capable of operating in pumped media up to 104°F. Motor

thermal switches shall monitor and protect the motor from excessive temperature. An internal Float Switch shall be available, as an option, in the motor chamber. Service of explosion-proof submersible units shall be performed by qualified FM experienced personnel. **The pump manufacturer must provide training schools to qualify personnel in the proper service and repair of explosion-proof pumps.**

b. DRY PIT INSTALLATION (CT):

Motor cooling shall be sufficient for continuous operation under full nameplate load in a dry environment. The pump(s) shall be capable of handling pumped media up to 104°F.

OIL FILLED MOTORS - Since the complete motor requires total oil immersion for adequate heat dissipation, **oil filled motors shall not be considered for dry pit installations.**

DRY TYPE - EXTERNAL FAN COOLED

MOTORS - When external fan cooling is required, two **Separate** motors are required one for the pump and one for the fan. This results in higher input power, increased operating costs and possible fan motor failure. A submersible pump is used for dry pit installation because of the high possibility of flooding. If the fan motor is operating when submerged, the down thrust developed will damage the fan motor. A pump motor of about **200 HP Depends** on the performance of a **3 HP** fan motor. **Thus, air cooled fans shall not be considered for dry pit installations.**

c. WARM LIQUID APPLICATIONS (WL):

Higher temperature units shall be available for pumped media temperatures of 140°F, 160°F and 195°F. Alternative cable, O-rings, seal materials, etc. may be used for the higher temperature applications. On certain pump models and for some higher temperatures, an external source of cooling water may be required.

d. STAINLESS STEEL PUMPS (SS):

Complete pump models shall be available in stainless steel. In addition, pump portions including impeller, volute, hydraulic end and motor shall be available in stainless steel. The pump models shall be capable of handling pumped media up to 104°F.



PERFORMANCE CURVE

PRODUCT

CP3057.180

TYPE

HT

DATE

2003-04-01

PROJECT

CURVE NO

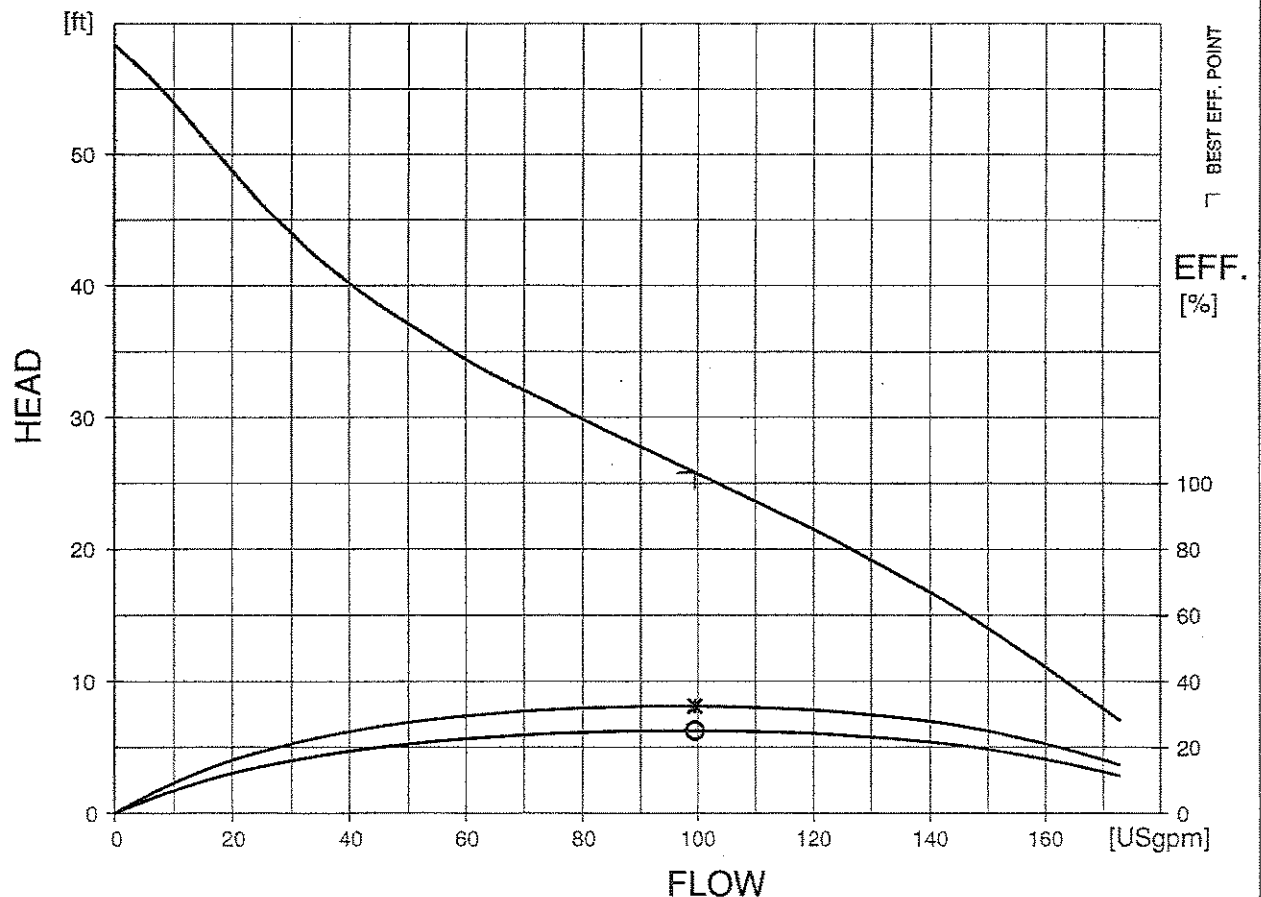
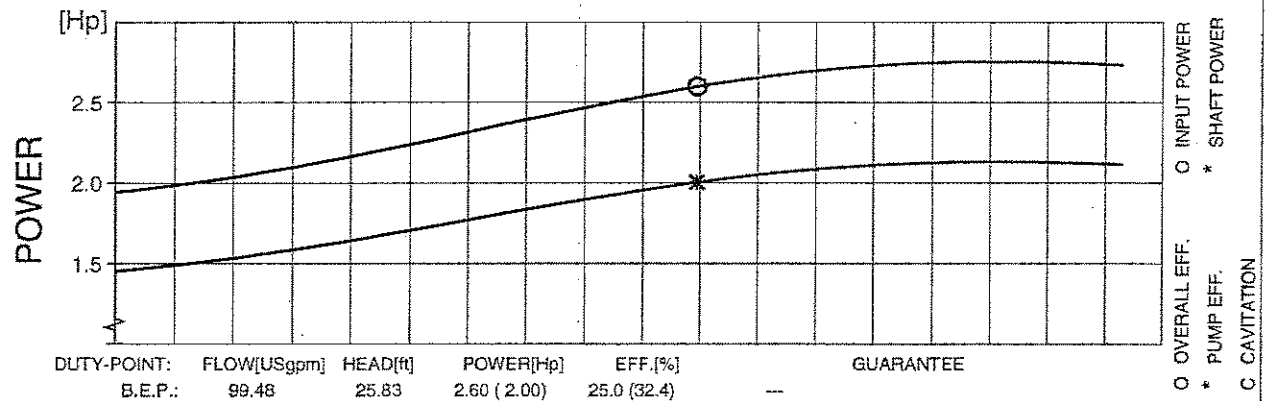
63-256-00-3168

ISSUE

1

	1/1-LOAD	3/4-LOAD	1/2-LOAD	RATED POWER	2.4	Hp
POWER FACTOR	0.88	0.84	0.75	STARTING CURRENT ...	22	A
EFFICIENCY	77.5 %	76.5 %	72.0 %	RATED CURRENT ...	3.6	A
MOTOR DATA	---	---	---	RATED SPEED	3455	rpm
COMMENTS	INLET/OUTLET - / - IMP. THROUGHLET ---			TOT.MOM.OF INERTIA ...	---	
				NO. OF BLADES	1	

MOTOR #		STATOR	REV
13-09-2AA		04YSER	10
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	460 V	2
GEARTYPE		RATIO	
---		---	



FLYPS 2.0 (1118)

Performance with clear water and ambient temp 40 °C



CURVE

CP/DP-3057.091/181

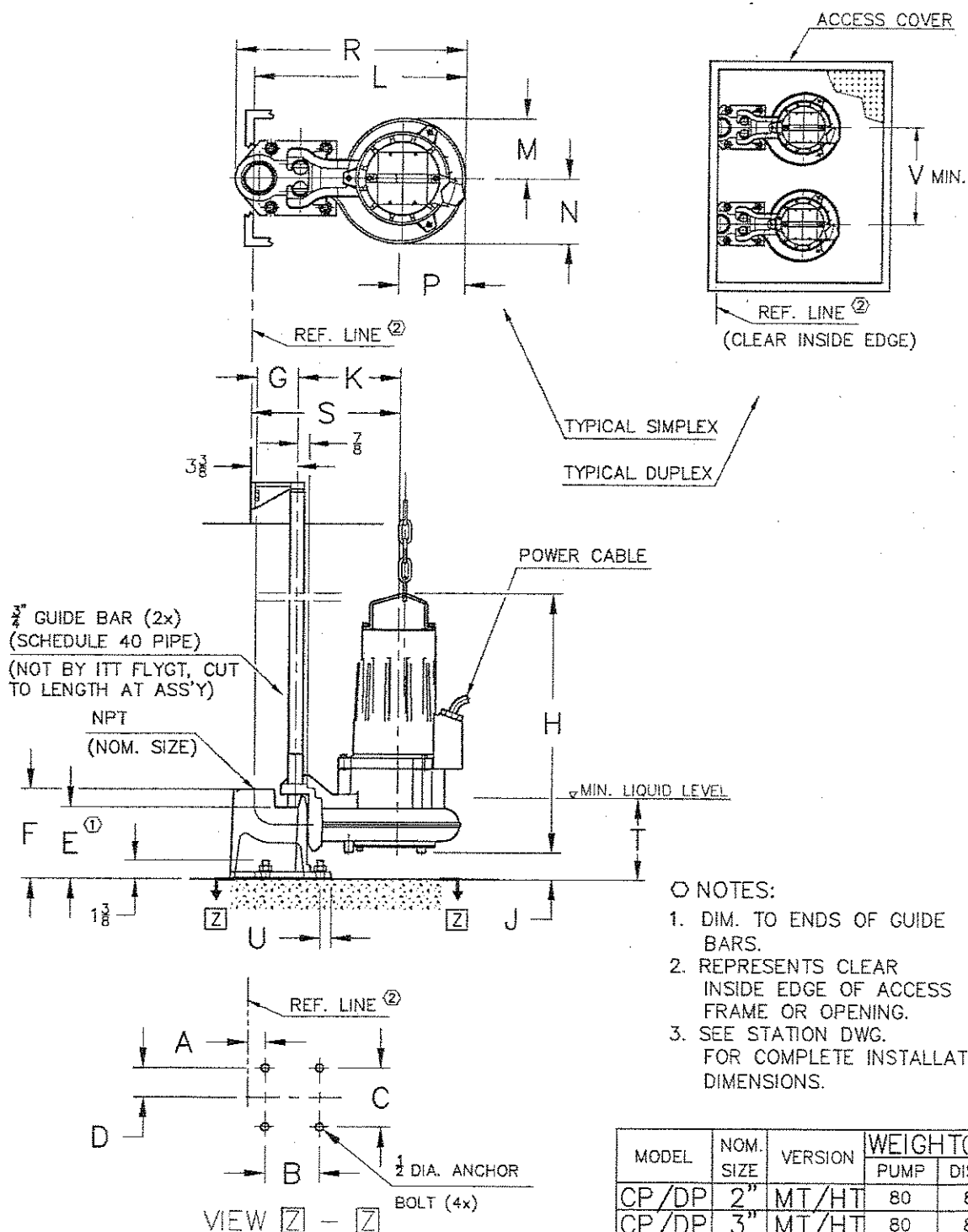
Section 4

FLYGT

Outline Dimensions

Issued: 11/00

Supersedes:



ALL DIMENSIONS IN INCHES

MODEL	NOM. SIZE	VERSION	DIMENSIONAL CHART																		
			A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
CP/DP	2"	MT/HT	1 1/2	4	4 1/2	2 3/8	5 1/4	6 3/4	3	19	2	7 1/2	15 1/2	4 1/2	4 3/4	4 3/4	16 3/4	11	6	1	16
CP/DP	3"	MT/HT	2 1/8	5 1/2	4 1/2	2 3/8	5 1/4	6 3/4	5 1/4	19	2	7 1/2	15 1/2	4 1/2	4 3/4	4 3/4	20 1/4	11	6	1	16

Warranty



General Information

Issued: 4/01

Supersedes: 6/94

1

ITT FLYGT 5 YEAR (10,000 HOUR) PUMP WARRANTY MUNICIPAL: PERMANENT INSTALLATIONS

For the period defined below, ITT FLYGT offers a Commercial Warranty to the original End Purchaser against defects in workmanship and material covering Parts and Labor on its pumps when used in permanent installations, in compliance with the requirements of the ITT FLYGT Catalog and Technical Manual specifications, for use in Sewage Collection Systems or for intermittent (40% duty cycle or less) pumping of Raw Sewage, Municipal Wastewater, Potable or Raw Water, Storm Water or similar, abrasive free non-corrosive liquids ("Qualified Liquids").

ITT FLYGT Pumps used with Qualified Liquids in Sewage Lift Stations are Warranted for 5 years. ITT FLYGT pumps used for Sewage Treatment Processing or for more continuous (41% duty cycle or more) pumping of Qualified Liquids are Warranted for 10,000 hours of operation. Warranty begins on the date of shipment from ITT FLYGT. ITT FLYGT will pay the following share of the cost of replacement parts and labor provided the Pump, with Cable attached, is returned prepaid to an Authorized ITT FLYGT Service Facility for repairs. Cutting Plates and Impellers for FP Pumps are not included in this warranty.

<u>TIME AFTER SHIPMENT</u>			
Months:	0-18	19-39	40-60
Hours:	0-3000	3000-6500	6500-10,000
Warranty:	100%	50%	25%

Unless otherwise specified by ITT FLYGT Corporate Headquarters, time after shipment shall be determined from shipping date, to date of receipt of defective product (or Warranty Claim) by ITT FLYGT or any of ITT FLYGT's Authorized Service Facilities.

Start-up report and electrical System Schematics (including Bills of Material) will be required to support any Warranty Claims. This Warranty shall not apply to any Product or Part of Product which has been subjected to misuse, accident, negligence, used in a manner contrary to ITT FLYGT's printed instructions or damaged due to a defective power supply, improper electrical protection or faulty installation or repair. The 5 year (or 10,000 hour) Warranty applies to the following Accessories if originally purchased with the pumps: Discharge Connection, Access Cover, HDL Valve, Guide Bar Bracket(s) and Pump Power Cable(s).

IMPORTANT: For warranty purposes, Monitoring devices supplied with specific pumps for protection must be connected and utilized. Failure to do so will invalidate the warranty.

ITT FLYGT's sole obligation under this Warranty shall be to Repair, Replace or Grant a Credit Reimbursement at its discretion, through its Warranty Processing Procedures for defective products when returned prepaid to ITT FLYGT and upon ITT FLYGT's exclusive examination found to be defective. Products repaired or replaced under this warranty will be returned freight prepaid.

ITT FLYGT neither assumes, nor authorizes any person or company to assume for it, any other obligation in connection with the sale of its equipment. Any enlargement or modification of this Warranty by a Representative, or other Selling Agent shall become his exclusive responsibility.

ITT Flygt will not be held responsible for travel expenses, rented equipment, outside contractor's fees, unauthorized repair shop expenses, or for pumps purchased or used without ITT Flygt supplied cable or controls unless suitable for the purpose and equal to ITT Flygt cables or controls. The warranties made herein by ITT Flygt are in lieu of any and all other warranties, expressed or implied and the implied warranties of merchantability and fitness for a particular purpose are hereby expressly disclaimed. ITT Flygt assumes no liability for loss of use or for any direct, indirect or consequential damages of any kind in respect to the use or operation of ITT Flygt products, or any equipment or accessories in connection therewith.

THE ITT FLYGT CORPORATION
FUS 4-2001